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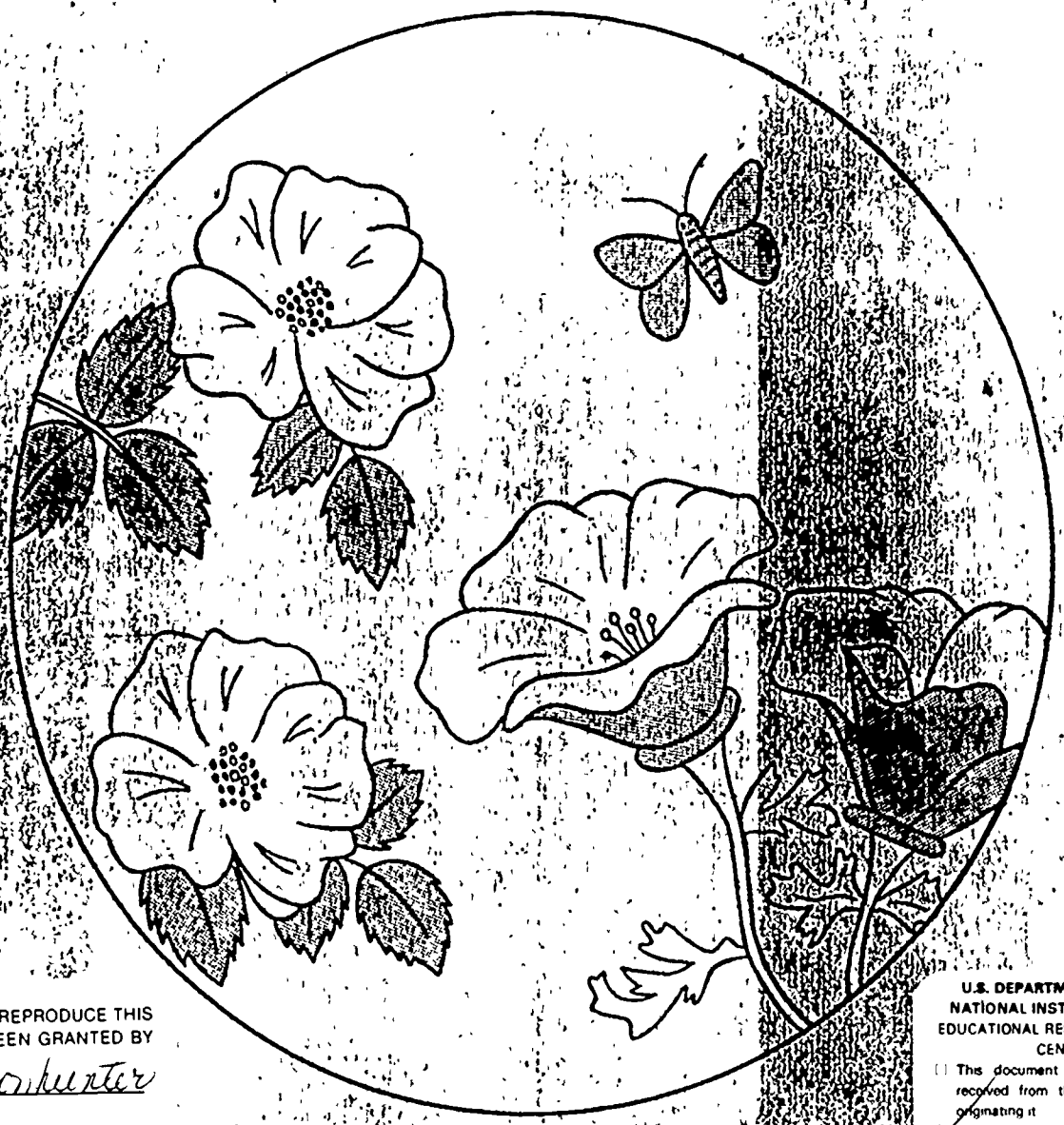
ABSTRACT

Part of a series on Arapaho Language, the student workbook introduces sounds and their relationship to language learning. The workbook presents explanations of sounds made by mammals, birds, and amphibians; vibrations made by vocal cords; the use of the tongue or shape of the mouth to make sounds; and human speech sounds. Exercises in speech and questions pertaining to the reading accompany each section. Exercises include related speech sounds in languages such as Arapaho, Shoshone, and French; the "th" sounds; and a 5-item unit test. Twelve unit activities are provided in reference to thinking about sounds. (ERB)

ARAPAHO LANGUAGE



Student Workbook

Name: _____

THINKING ABOUT SOUNDS

An Introduction To Language Learning

by
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Illustrations
by
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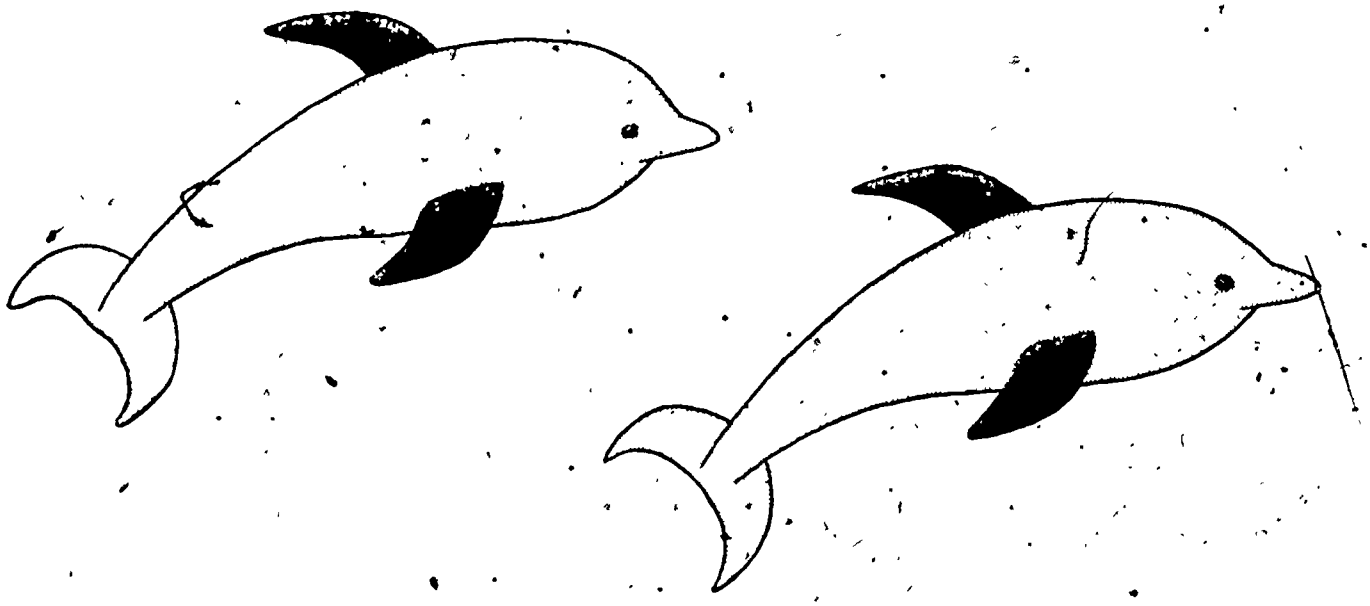
Produced by the Title IV-A
Curriculum Development Project

Wyoming Indian High School
Ethete, Wyoming U.S.A.

Thinking About Sounds



Sound is defined in the dictionary as vibrations in air, water, etc. that stimulate the auditory nerves and produce the sensation of hearing.

Vocal sounds are only those vibrations produced in the throat of a person or animal. These vibrations are set up by the vocal cords.

Most mammals, birds, and amphibians have a larnyx (lair-inks), or voice box, with two pairs of cords inside. Vibrations are started by air from the lungs passing through the vocal cords. The volume (loudness) depends on the amount of air rushing past the vocal cords and how hard that makes the cords vibrate. The pitch (highness or lowness) depends on how fast the cords vibrate. Have you ever tuned a guitar, or whistled by blowing on a blade of grass held between your thumbs, or "twanged" a rubber band or fishing line? If so, you know that pulling the wire or grass tighter makes it vibrate faster and the pitch go higher; loosening it lowers the pitch. Vocal cords work the same way, except that their pitch is adjusted by throat muscles instead of your finger muscles!

1. Why does the larynx have to be in the throat? _____

_____

2. Why can't most fish make vocal sounds? _____

_____

3. Humpback whales are among the most famous singers of the sea. Can sound travel underwater, or do the whales have to come to the surface to sing? _____

_____

Are whales fish? ____ Why are they able to make vocal sounds?

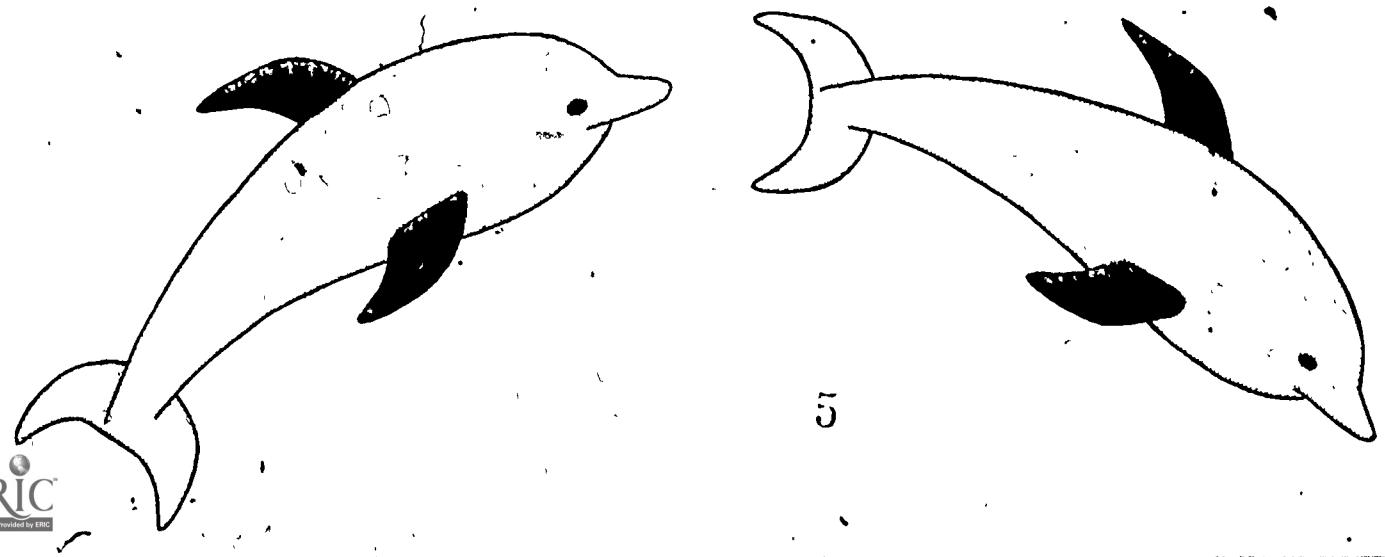
_____

_____

4. Male crickets chirp by rubbing parts of their forewings together. Are these cheerful songs vocal sounds? _____

5. Familiar sounds are listed below. Put a V in the blank before each vocal sound:

_____squeal of tires	____yell of crowd	____honk of goose
_____squeal of pig	____splash of fish	____honk of car
_____tap of woodpecker	____hum of mosquito	____croak of frog
____whisper of spies	____song of meadowlark	____howl of coyote
____whisper of leaves	____buzz of rattlesnake	____howl of wind
____cough of child	____ring of axe	____bugle of elk



THINKING ABOUT VOCAL SOUNDS

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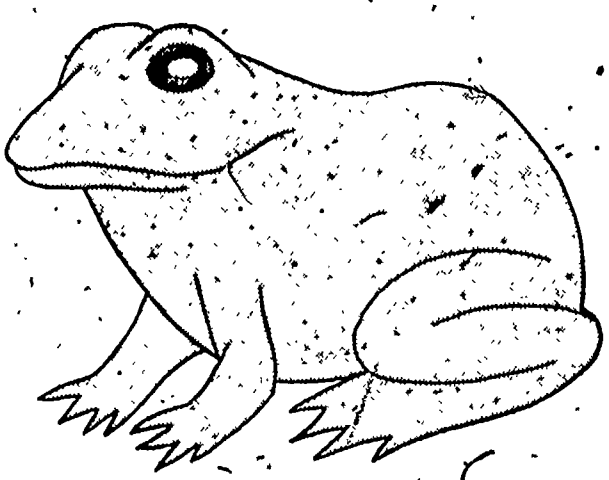
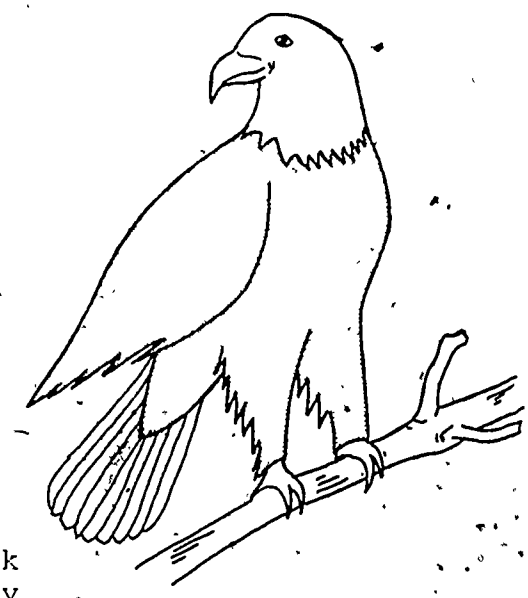
Vocal sounds, you remember, are only those vibrations produced by vocal cords in the throat of a person or animal.

Think of all the vocal sounds a dog can make: It can whine, bark, yip, growl, moan, howl, and yawn noisily. Each of these sounds can be varied by the dog to suit his feelings; his bark can be loud, soft, high-pitched, deep, slow and bored, fast and furious, etc. Combining his vocal sounds with body language (movement of ears, tail, eyes, etc.), a dog can almost talk -- to anybody who knows how to really listen.

Dogs can even shape the sounds a little, by opening the lower jaw a little more or less, and moving or curling the tongue. Then how come dogs don't learn to speak English or Arapaho? Well, for one thing, different parts of a brain control different activities, and the language part of a dog's brain is smaller (for his size) than the language part of a human brain.





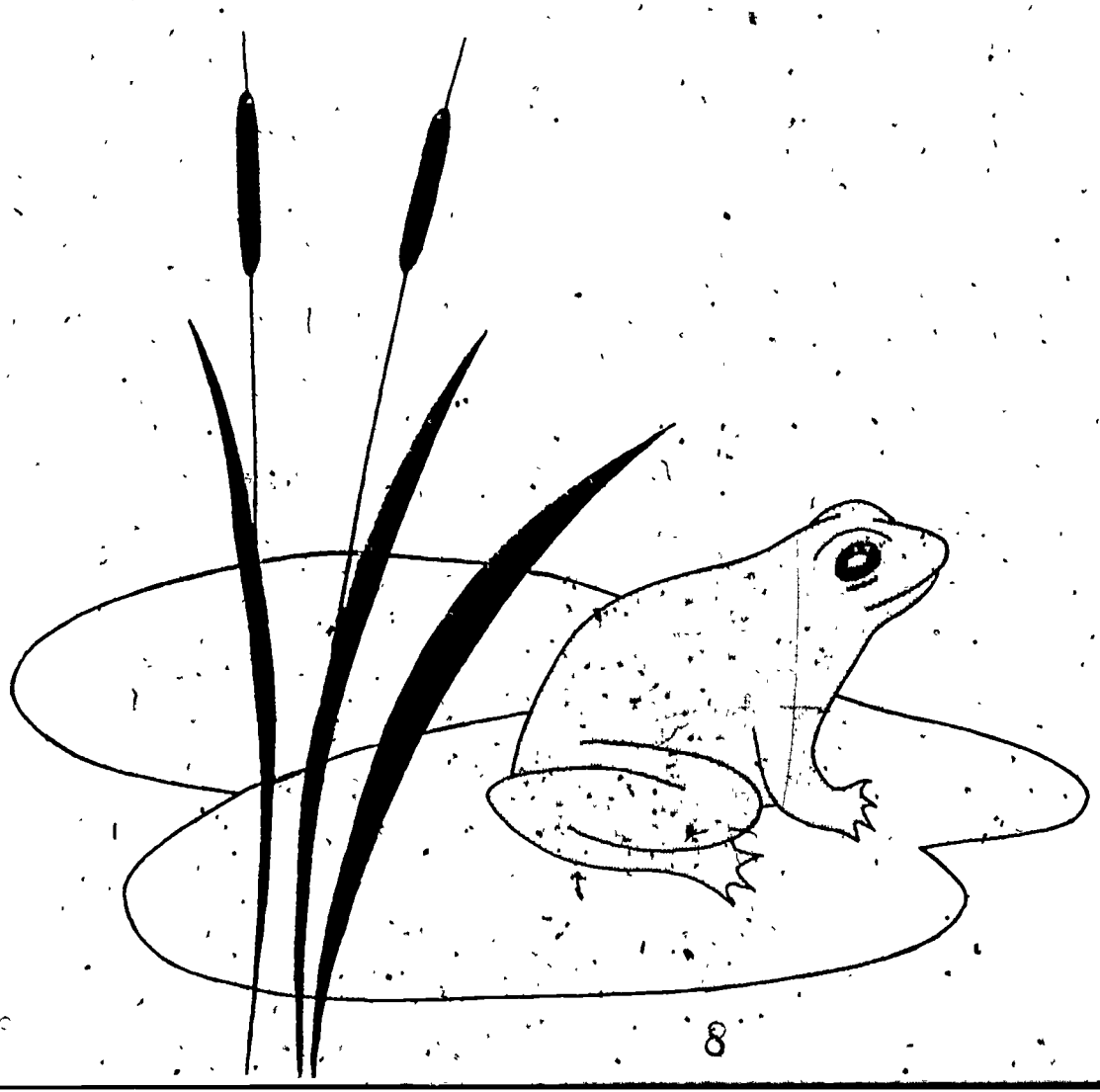
Scientists are still studying this language question, and the only animals they've found that might have larger language sections in their brains (for their size) than humans are the dolphins and killer whales. If they're so smart, why don't they learn to speak English or Hawaiian? Actually, they have pretty complicated languages of their own, and people can't speak theirs, either! As a matter of fact, the dolphins are ahead, because a few of them have been trained to make sounds fairly close to human speech. Could you understand George C. Scott's dolphin in the movie, "Day of the Dolphin"?

Dolphins' mouths are different from ours, so the natural sounds of their language differ, too. We can't make the variety of clicks and beeps and whistles that dolphins do; but they can't make sounds the way we do. Say the letter "b" to yourself: then the letter "o": What did you use to make both sounds? ____I used my _____. Can dogs do that?_____Killer whales?_____ Golden Eagles?_____

Now think about the letters "c", "z", "l", and "d" as you say them to yourself: Do other animals have that much control over their lips and tongues?

ONLY IN CARTOONS!!

A frog's tongue is attached at the front of his mouth; we can't flick our tongues out and catch insects flying by, but he can't use his sticky tongue to make the "g" or "l" sound. We can't sip nectar through a long, hollow tongue and then curl it up when we fly away, but a moth can't use her wonderful tongue to sing "do, re, mi..." in a mountain meadow. We can't smell scents by flicking out our tongues, but a snake can't say the word "slither" with his sensitive, divided tongue. Tongues have many unusual uses, but human tongues are the only ones especially well-suited for making human speech sounds.



THINKING ABOUT HUMAN SPEECH SOUNDS

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There are over a hundred different vocal sounds made by people as they speak their own languages around the world.

Forty years ago a scientist discovered that as a baby gurgles and coos and babbles and "talks" to itself, it makes most of those human sounds. By the time it is a year old, it has stopped making the possible sounds and only practices the vocal sounds it hears around it. By the time it has grown into an adult, that baby will find it extremely difficult to make any vocal sounds it's not used to. That's one reason why children can learn new or foreign languages much more easily and smoothly than grown-ups can.

Now, it's time to think more carefully about some of the speech sounds you've been making for years. Close your lips tightly and try to think of all the speech sounds you make with your mouth in that position: ___ ___ ___. If you didn't think of three, put your fingers on your larynx (voice box) and keep your lips tightly closed: now hum softly. Can you feel the vibrations? What consonant letter do we use to write the sound you're making? ____ Does the air from your lungs go out your nose or between your lips? It escapes from my _____. Next, barely open your lips so that the air goes out between them; make sure you can still feel vibrations in your larynx. As you close your lips again, what sound are you making?____ For the third sound, blow harder through your mouth and don't hum; what sound do your lips make as they open? ____ Do you feel any vibrations in your throat this time?____

The "m" is voiced because the vocal cords are vibrating, and nasal because most of your breath is traveling out through the nose. The "b" is voiced, too, but not nasal because the air passes out through your mouth. The "p" is not voiced, because the sound is made by blowing air past the lips without any help from the vocal cords. For the rest of this unit, sounds like "p" will be described as blown. (The scientific term is "aspirated", from the Latin word "spirare"--to breathe.)

Try another set of sounds. Place the tip of your tongue on the inside ridge just above your top teeth. Hum while you direct the air out through your nose. Write the letter for the sound you are making. ____ Now breathe out gently through your mouth, tapping the tip of your tongue on the same ridge while you hum. Write the letter that shows the sound you are making this time. ____. Next, blow harder through your mouth and tap your tongue on that ridge without using your vocal cords. Name that sound! ____

Which was the voiced nasal sound? ____

Which was the voiced sound you breathed through your mouth? ____

Which was the blown sound? ____

THINKING ABOUT RELATED SPEECH SOUNDS

There are other groups of related sounds besides m/b/p and n/d/t, but only one more with a voiced nasal in the set! To find it, open your jaw and lips just slightly; place the BACK of your tongue up against the hard curve at the back of the roof of your mouth; now hum and breathe through your nose. Which two consonant letters can be written to show the sound you're making?____, ____ If you're not sure, say "sing" to yourself and think about where your tongue is; now do you know what it is? For the next sound, hum and breathe through your mouth as you touch the same spot with the back of your tongue up against the same spot as before. Which letter shows this sound? ____Which of those three sounds was the voiced nasal? ____Which was the voiced sound breathed through your mouth?____Which was the blown sound? ____

The sounds shown by the letters "m", "n", and "ng" are the only voiced nasals in the English language, but some languages have fewer and some have many more. Arapaho, for example, only has nasal sounds connected with the letter "n". Shoshone, Sioux, and French have many nasal and partly-nasal sounds, both consonants and vowels.

Let's try another pair of related sounds. Hold your bottom lip against your top teeth. Now hum and breathe a little through your mouth. What sound are you making?___Does the vibration tickle your lip? Keep your mouth and lips in exactly the same position and blow without humming. Write the letter for that sound. ____

The next pair of related sounds is a little harder to explain. Say the following words to yourself, and think especially about the sound made by the underlined letter in each word.

pleasure treasure azure garage decoupage

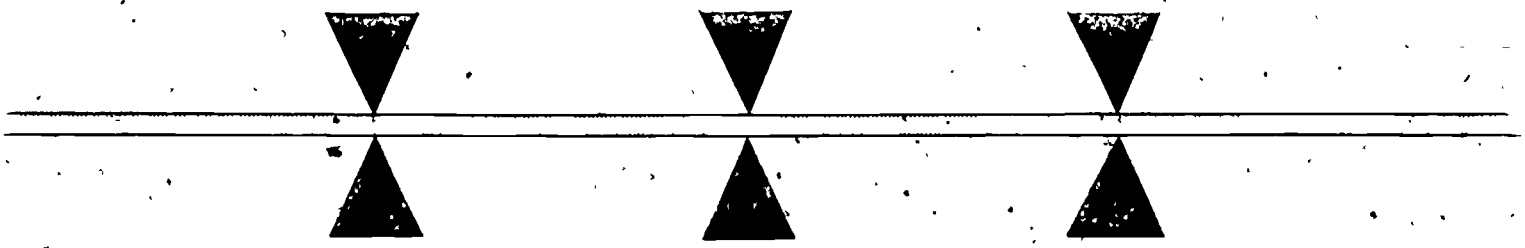
The dictionary used the letters "zh" to show the pronunciation of this sound. Write the correct English spelling of this word: (mezh-er), ____ ____ ____ ____ ____. Now hum the zh sound to yourself. Can you feel the vibrations in your throat? _____Is it voiced? ____Keeping your cheeks and lips and tongue in exactly the same position, stop humming and blow. What sound is that? ____ ____

1. Which are the three voiced nasal consonants in the English language?

   _____ _____ _____

2. Try to match up the related pairs of sounds in the chart below. Some you've already practiced and some you'll have to figure out for yourself. Choose from the letters t, wh, j, p, sh, z, k, v, gw.

VOICED	g		d	b				w	zh
BLOWN		ch			f	kw	s		



"TH" Sounds & New Vocabulary Check-Up

There is only one pair of related sounds that is written the same way in English whether it is voiced or blown. Look at the words below and circle the three with the th that is BLOWN:

breath	-	breathe
bath	-	bathe
cloth	-	clothe

Did you circle the three on the left? "Breath" is what you're out of after 23 laps around the gym; "breathe" is what you do (hard and fast!). "Bath" is what you take, and "bathe" is what you do -- or do to a baby. "Cloth" is what you cut and sew; "clothe" yourself is what you usually do before going out. It's not always that easy and regular, though. Look at the pair of words below:

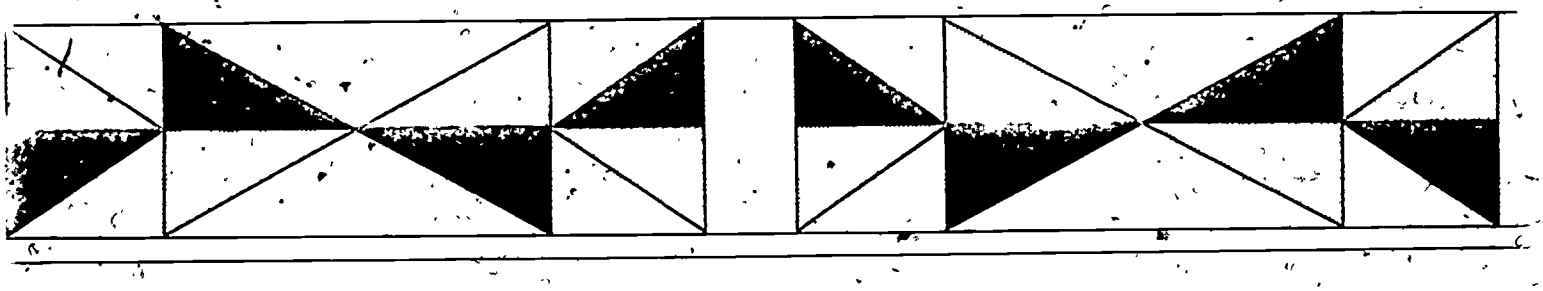
thin	-	then

The th in "thin" is blown, but the other is voiced. There's no rule for it. You just learn which is which as you grow up and hear the words spoken around you. Read the words below to yourself, and then circle the blown "th's".

there	three	wreath	the
with	thick	moth	this
they	thin	path	feather
those	thanks	earth	mother
that	healthy	panther	father
worthy	worth	Ethete	rhythm

You should have circled all the th's in the two middle columns. Now go back and put a star * beside the ONLY word in the list above that has a voiced th at the END of the word.

This is the end of your unit on thinking about sounds. Go back and make sure you know what these words mean: vibrations, vocal, larynx, vocal cords, volume, pitch, nasal, blown, voiced.



THINKING ABOUT SOUNDS

UNIT TEST

1. Name 4 parts of your mouth that control or help shape the different human speech sounds. (Name 2 more for extra credit).

_____ _____ _____ _____

_____ _____ _____ _____

2. Name 4 other parts of the body that are necessary for you to make human speech sounds. (Hint: Don't forget something to START the air moving to the others.)

_____ _____ _____ _____

3. Some people have worked hard to teach chimpanzees to speak a human language. Why would they have picked chimpanzees for their experiments? In what ways are chimps different from most other animals. Do you think the experiments will be successful? Why or why not?

_____

_____

_____

_____

_____

_____

_____

_____

4. List three vocal sounds not made by humans:

_____ _____ _____

5. Match these words and their meanings by putting the letter of the correct definition in the blank in front of each vocabulary word:

_____	larynx	a. sound made when air passes out through nose
_____	nasal	b. rapid back-and-forth movements
_____	pitch	c. body part that protects the vocal cords
_____	vibrations	d. degree of loudness of sound; strength of vibration
_____	volume	e. highness or lowness of sound; speed of vibration.

ARAPAHO LANGUAGE

Thinking about Sounds -- Unit Activities

Pick the activity that sounds the most interesting to you , or think of one yourself. It can be an experiment, a building project, a research/report (written or oral), a chance to write away for additional information and materials, or any other useful learning activity that sounds good to you and your teacher.

1. Read the book Never Cry Wolf by Farley Mowat, or Julie of the Wolves by Jean Craighead George. Then listen to the recording narrated by Robert Redford called "The Language and Music of the Wolves."

2. Find out more about the toothed whales (dolphins, porpoises, killer whales, etc.): First read the easy book of true stories about nine real dolphins. Then, either read the hard but fascinating books by scientist John Lilly, or chapters from the last three books listed below.

   a) Nine True Dolphin Stories; by Margaret Davidson

   b) The Mind of the Dolphin: A Nonhuman Intelligence; John Lilly

   c) Communication Between Man and Dolphin: The Possibilities of Talking with Other Species; John Lilly

   d) Monsters of the Deep; Heather Angel

   e) The Whale; edited by Leonard H. Matthews (especially Chap. 9)

   f) Whales and Other Sea Mammals; Time-Life's Wild, Wild World of Animals series

3. Learn more about the baleen whales, especially the singing humpbacks and belugas: Read the easy book Little Humpback Whale by Ann McGovern; then check the last three books mentioned above. Listen to a Judy Collins album with the "Farewell to Tarwathie" cut featuring underwater whale sounds.

5. If you like to draw, make a classroom chart of diagrams showing the position of jaws, lips, and tongue as you make the different speech sounds. There are many materials that can help you with this project, such as the book An Introduction to Descriptive Linguistics by H. A. Gleason, Jr.

4. Draw a diagram of the nasal valves found in dolphins, etc., and explain to your classmates how they can make all those underwater sounds without losing needed air from their lungs.

6. Look in the index to the National Geographic magazine or the Reader's Guide for articles on sonar, communications, porpoises, killer whales, wolves, chimpanzees, or whatever part of the unit interested you most.

7. Many different cultures have legends in which animals and people could talk to each other at one time. Try to find one from each continent, and make your favorite into a short play or skit.

8. Alexander Graham Bell discovered and invented many things connected with sound. Read a book or National Geographic article about him. With your teacher's permission, show your class the free Mountain Bell film about him, "Here Is Tomorrow;" make all the arrangements yourself, from ordering to reserving the projector to returning the film.

9. Have you seen the movie "The Miracle Worker?" Read one of the many good books about Helen Keller, who was both deaf and blind, and about her teacher, Annie Sullivan.

10. There are a few places in the world where humans have developed complicated non-vocal languages, such as in the Pyrenees Mountains between Spain and France, and Arapaho sign language. Find out about the birdlike language of the Canary Island shepherds by reading the April, 1955 issue of the National Geographic magazine. You might also enjoy the book Green Mansions by Stephen Hudson, a romantic classic about Rima, mysterious bird-girl of the rain forest.

11. Order two films, such as Mountain Bell's "A Sense of Hearing" or "The Speech Chain." Lead the discussion after showing each movie; then write and administer a quiz over the important points presented in the film.

12. Arrange a class field trip to San Diego's Sea World or Florida's Marineland!